Independent claims 1 and 29 are allowable over the cited references at least for the reason that claims 1 and 29 recite a combination of elements including a photo-alignment layer having a pretilt angle on at least one of the first and second substrates. None of the cited references, singly or in combination, teaches or suggests at least this feature.

Column 6 of Koma describes an orientation film 23, referred to as an alignment layer by the Examiner, wherein rubbing treatment of the orientation film 23 is not required. Further, the effective potential difference between the orientation control electrode 22 and the common electrode 32 is set smaller than that between the display electrode 17 and the common electrode 32. Therefore, in the periphery of the display area, an electric field 42 occurs from the display electrode 17 to the common electrode 32 in a slant direction from within the display area to the outside of the display area, thereby specifying the angle of the orientation vector of liquid crystal directors 40 with the electric field 42 and the azimuth with the electric field direction as an axis. That is, if the initial orientation vector is at some angle with the electric field direction, elasticity based on a continuum property of the liquid crystal causes the orientation vector to change in a direction to increase the angle in the shortest way when an electric field is applied, so that stable energy is provided.

In contrast, in this application, irradiating light at least once on the alignment layer determines the alignment direction or pre-tilt direction and the pre-tilt angle at the same time, so that the stability of the liquid crystal molecules is obtained.

The Examiner admits that Koma does not disclose photo-alignment, and cites Auman et al. to cure the deficiencies in Koma. Applicants submit that it is not necessary to subject the orientation film 23 in Koma to a photo-alignment process since the improvement in the claims includes orientation control electrodes formed on the first substrate which are

electrically insulated from the display electrodes. Also, a potential difference from that of the display electrode is applied to the orientation control electrode for controlling the orientation of the liquid crystal. One of ordinary skill in this art would not modify Koma by subjecting the orientation film to the photo-alignment process described in Auman et al. because such an arrangement would teach away from the disclosure and purpose of Koma.

Applicants submit that there is no motivation to combine these two references. None of the cited references teaches or suggests a photo-alignment layer as recited at least by claims 1 and 29. Applicants submit that claims 1 and 29 are allowable over the cited references. Applicants respectfully request that the rejection under 35 USC § 103(a) be withdrawn.

Further, none of the cited references teaches or suggest a negative uniaxial or two-axial/biaxial film as recited in at least claims 27, 28, 55, and 56. Furthermore, the Examiner has not pointed out a particular finding as to the specific understanding or principle within the knowledge of a skilled artisan, either expressly or by implication that would have motivated one with no knowledge to provide a negative uniaxial or two-axial/biaxial film in Koma. Accordingly, no proper motivation or suggestion is found in any of the cited references. Rather, Applicant respectfully submits that such a film is suggested only by the claimed invention and that modifying Koma to include a negative uniaxial or two-axial/biaxial film is considered impermissible hindsight.

Moreover, claims 2-5, 7-22, 24, 26-28, 30-33, 35-50, 52, and 54-56 are allowable by virtue of their dependence on claims 1 and 29, which are believed to be allowable.

The Examiner rejected claims 6 and 34 under 35 USC § 103(a) as being unpatentable over Koma (US Patent No. 5,608,556) in view of Auman et al. (US Patent No. 6,139,926),

Convenient

and further in view of Koma et al., "No-Rub Multi-Domain TFT Using Surrounding-Electrode Method." The Examiner rejected claims 23 and 25 under 35 USC § 103(a) as being unpatentable over Koma (US Patent No. 5,608,556) in view of Auman et al. (US Patent No. 6,139,926), and further in view of Bos et al. (US Patent No. 6,141,074). The Examiner rejected claims 51 and 53 under 35 USC § 103(a) as being unpatentable over Koma (US Patent No. 5,608,556) in view of Auman et al. (US Patent No. 6,139,926), and further in view of Van De Witte (US Patent No. 5,936,692). Applicants respectfully traverse these rejections.

As discussed above, none of the cited references teaches or suggest the photo-alignment layer as recited by at least claims 1 and 29. None of the cited references, singly or in combination, teaches or suggests this feature. Koma et al., Bos et al., and Van De Witte fail to cure the deficiencies of Koma and Auman et al. Applicants submit that claims 6, 23, 25, 34, 51, and 53 are allowable by virtue of their dependence on independent claims 1 and 29, which are believed to be allowable. Applicants respectfully request that the rejections under 35 USC § 103(a) be withdrawn.

Should the Examiner deem that a telephone conference would further the prosecution of this application, the Examiner is invited to call the undersigned attorney at (202) 624-1232.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136. Please credit any overpayment to deposit Account No. 50-0911.

Respectfully submitted,

LONG ALDRIDGE & NORMAN, LLP

Date: May 29, 2002

By _____
Teresa M. Arroyo
Registration No: 50,015

701 Pennsylvania Avenue, N.W.
Sixth Floor, Suite 600
Washington, D.C. 20004
Telephone No.: (202) 624-1200
Facsimile No.: (202) 624-1298